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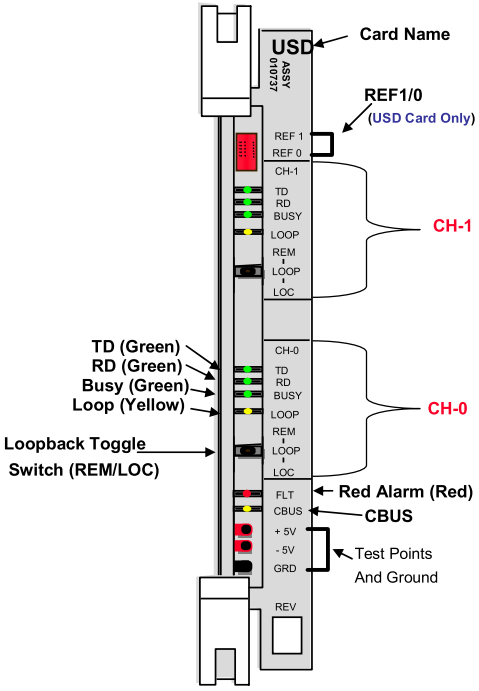
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Find the *Ribbon / Performance Technologies / Network Equipment Technologies USD* at our website: ***Click HERE***

Data Card USD

Universal Synchronous Data Module (USD)

- Very common module
- Provides two independent synchronous data ports
- Port 0 can accept an external clock for network synchronization, must actuate clock select DIP switch.
- As a minimum, used as a secondary timing source on node
- Can provide transmit and receive clocking or no clocking



Port 0 is the only port capable of input external timing.

Max port speed must NOT equal max card speed, as overhead must be added for card operation.

Port speeds for the USD card are: 256kbs, 512kbs, 1024kbs, and 2048kbs.

See Notes:
All Data Card Front Interfaces are similar in appearance and function.

Install Card USD

```
< ins car, c7

*** SLOT N2C7 CONTAINS CARD TYPE USD.

DO YOU WANT TO INSTALL CARD N2C7?  [YES]
YES OR NO =

*** INSTALLABLE CARD TYPES ***
[ 0]  TRK          [19]  INTU-558      [38]  PX PLUS
[ 1]  LDCELP12     [20]  X50           [39]  VCFAX-24
[ 2]  LDCELP24     [21]  HSD-2         [40]  VCFAX-12
[ 3]  CX           [22]  TMCP          [41]  PX-3
[ 4]  URD          [23]  QXP           [42]  TRK-3
[ 5]  QSD          [24]  TK64          [43]  ECHOX
[ 6]  INTU-560     [25]  I422-TRK      [44]  APX
[ 7]  TRK-2        [26]  QASD          [45]  PLM
[ 8]  HSD          [27]  HDVC24        [46]  PPM
[ 9]  DS-1         [28]  HDVC12        [47]  LDCELP6
[10]* USD          [29]  QAVP          [48]  HLC
[11]  MEM          [30]  DS0B          [49]  PVEC
[12]  QSD-2        [31]  CLB2          [50]  PVE24
[13]  TK56         [32]  PX            [51]  HINTU
[14]  PRC          [33]  PX-2          [52]  TWC
[15]  DS0A         [34]  PVAC          [53]  IP-TRK
[16]  VC31         [35]  PVA
[17]  VC62         [36]  LS-TRK
[18]  DMD          [37]  SATRK

NOTE: '*' MARKS DEFAULT SELECTION.
ENTER CARD TYPE FOR CARD N2C7?  [USD]
CARD TYPE =
```

Because of signaling bandwidth requirements, the maximum card speed for the USD must be greater than the fastest port speed. For example, to use a port speed of 256 kbps, the card's maximum port speed must be 512 kbps, not 256 kbps.

```
*** USD CARD N2C7 CONFIGURATION PARAMETERS ***
[ 1]  MAX PORT SPEED = 256000 BPS
[ 2]  VALID REFERENCE CLOCK MONITORING = DISABLED

ENTER PARAMETER INDEX (OR HIT RETURN TO CONTINUE)
PARAMETER INDEX =


ARE ALL PARAMETERS CORRECT?  [YES]
YES OR NO =

*** USD CARD N2C7 HAS BEEN INSTALLED.


*** USD CARD N2C7 CONFIGURATION (CPU: C0) ***
   DB STATUS: DISABLED *        SLOT TYPE: USD (REV G)
   INSTALLED PORTS: 0           MAX PORT SPEED: 256000 BPS
   VALID REFERENCE CLOCK MONITORING: DISABLED
   INTERFACE TYPE: DCE/RS530/D
DO YOU WANT TO ACTIVATE CARD N2C7?  [YES]
YES OR NO =

*** USD CARD N2C7 HAS BEEN ENABLED.

*** USD CARD N2C7 HAS BEEN ACTIVATED.


*** COMMAND COMPLETE ***
```

[1] Max Port Speed

This parameter sets the maximum speed (in kbps) for a port. The maximum port speed determines the logical slot assignment for the module. The speed assigned to individual ports cannot exceed the maximum port speed of the card.

[2] Valid Reference Clock Monitoring

Options are ***Enabled*** **and** ***Disabled*** **(default).**

This parameter applies to USD cards that have port 0 cabled to provide station clock. Options are *Disabled* (default) and *Enabled*. When enabled, interface signals on port 0 are monitored to confirm that the circuit is up and serving as a valid clock reference. When port 0 is a DCE port, the DTR signal is monitored. When port 0 is a DTE port, the DSR or RI signal is monitored. When the monitored signal goes down, a new clock reference is chosen for the node.

[3] DCE/DTE Valid Reference Clock Monitoring Signal

Options are ***DTR/DSR*** **(default) and** ***DTR/RI.***

This parameter appears when the Valid Reference Clock Monitoring parameter is enabled. This parameter specifies the signal monitored to validate the USD clock reference when port 0 is configured to supply station clock. For DCE interfaces, the *DTR* signal validates the clock reference. For DTE interfaces, the *DSR* (Data Set Ready) or *RI* (Ring Indicator) signal validates the USD clock reference.

Query Card USD

```
< q car, c7

ENTER DISPLAY MODE (DETAIL OR SUMMARY)  [D]
DISPLAY MODE (D OR S) =


*** USD CARD N2C7 CONFIGURATION (CPU: C0) ***
   DB STATUS: ACTIVE              SLOT TYPE: USD (REV G)
   INSTALLED PORTS: 1             MAX PORT SPEED: 256000 BPS
   VALID REFERENCE CLOCK MONITORING: DISABLED
   INTERFACE TYPE: DCE/RS530/D
*** HIT RETURN TO CONTINUE (ESCAPE TO QUIT) ***


*** COMMAND COMPLETE ***
```

Highlighted above are certain things to look for when querying this card, this query will aid you in troubleshooting.

Install Port USD (1)

```
< ins port, c7p0

PORT N2C7P0 IS TYPE 'USD'.
DO YOU WANT TO INSTALL THIS PORT?  [YES]
YES OR NO =

DO YOU WANT TO COPY THE CONFIGURATION OF AN EXISTING PORT?
[NO]
YES OR NO =

*** USD PORT N2C7P0 CONFIGURATION PARAMETERS ***
[ 0]  ORIG/ANS MODE = ANS-ONLY
[ 4]  PORT SPEED = 256000 BPS
[ 6]  CALL ANSWER SIGNAL = NONE
[15]  DTE/DCE = DCE
[16]  TIMING = INTERNAL
[17]  DCE TERMINAL TIMING = NO
[18]  RTS/CTS DELAY = 0 MS
[19]  LOCAL CTS = NO
[36]  SIGNAL EVENTS ENABLED = NO

ENTER PARAMETER INDEX (OR HIT RETURN TO CONTINUE)
PARAMETER INDEX = 0

*** ORIGINATE/ANSWER MODES ***
[ 0]* ANS-ONLY
[ 1]  ORIG-ONLY
[ 2]  ORIG/ANS

NOTE: '*' MARKS DEFAULT SELECTION.
ENTER ORIGINATE/ANSWER MODE FOR PORT N2C7P0
ORIG/ANS MODE = 2

ENTER DESTINATION PORT
DESTINATION PORT ID =  n1c25p1

*** PORT N1C25P1 IS NOT INSTALLED.

ARE YOU SURE YOU WANT TO SPECIFY THIS DESTINATION PORT?
[NO]
YES OR NO = y

*** USD PORT N2C7P0 CONFIGURATION PARAMETERS ***
[ 0]  ORIG/ANS MODE = ORIG/ANS
[ 1]  DESTINATION PORT = N1C25P1       (DEST PORT IS NOT
INSTALLED)
[ 2]  CALL/PREEMPT PRIORITY (CALL= 7; PREEMPT= 0 )
[ 3]  SECONDARY CALL/PREEMPT PRIORITY (CALL= 7; PREEMPT= 0 )
[ 4]  PORT SPEED = 256000 BPS
[ 6]  CALL ANSWER SIGNAL = NONE
[ 7]  CALL ORIG SIGNAL = NONE
[ 8]  TIME-OF-DAY RESTRICTION = NONE
[ 9]  ROUTING OPTIONS (TER=DON'T CARE; ENCRY=DON'T CARE;
FIBER=DON'T CARE; ATM=D
ON'T CARE; SCLX=DON'T CARE)
[15]  DTE/DCE = DCE
[16]  TIMING = INTERNAL
[17]  DCE TERMINAL TIMING = NO
[18]  RTS/CTS DELAY = 0 MS
[19]  LOCAL CTS = NO
[20]  PRIMARY SELECTED PATH = NONE
[36]  SIGNAL EVENTS ENABLED = NO
[44]  DATA FLOW DIRECTION = TWO WAY CALL
[81]  MAX LINK COST = 0

ENTER PARAMETER INDEX (OR HIT RETURN TO CONTINUE)
PARAMETER INDEX =

ARE ALL PARAMETERS CORRECT?  [YES]
YES OR NO =

*** USD PORT N2C7P0 HAS BEEN INSTALLED.
```

[0] Orig/Ans Mode

Options are ***Ans-only*** **(default),** ***Orig-only*****, and** ***Orig/Ans*****.**
This parameter allows the user to specify whether the port can originate and answer calls, answer calls only, or originate calls only. Origination-only and origination-answer ports require a destination port. This parameter is not available for DS0A ports because they are origination-only.

[1] Destination Port

The setting for the destination port is the ID of the port that communicates with the origination port. This parameter is required for originate/answer and originate-only ports. It is not required for answer-only ports.

[2] Call/Preempt Priority

The range for Call Priority is *0* (lowest) through *15* (highest). The default is *7*.
The range for Preempt Priority is *0* (lowest) through *15* (highest). The default is *0*.

[3] Secondary Call/Preempt Priority

The range for Secondary Call Priority is *0* (lowest) through *15* (highest) and the default is *7*. The range for Secondary Preempt Priority is *0* (lowest) through *15* (highest) and the default is *0*.

[4] Port Speed
When the interface is an RS-232, port speeds greater than 19.2 kbps are not allowed. Ports on the same card can have different speeds. The port speed for USD ports cannot exceed the maximum port speed set during card installation.

[5] Transparent Signaling
Options are ***Yes* and *No* (default).**
This parameter determines whether transparent signaling is used on the port.

[6] Call Answer Signal
This parameter specifies the signal required to answer a call. When the call answer signal and call origination signal are set to *No Signal*, this indicates a permanent call. This parameter is not supported for DMD ports.

[7] Call Orig Signal
This parameter specifies the signal required to generate a call. When the call answer signal and call origination signal are set to *No Signal*, this indicates a permanent call.

[8] Time-of-Day Restriction
The time-of-day restriction specifies a start and end time for the port. The default is *None*. This parameter is used when the call can only originate during a specific time of day. The call is torn down when the time has elapsed. With originate-answer ports, the destination port are not affected.

[9] Routing Options
This parameter specifies the requirements for terrestrial routing, encryption routing, fiber routing, ATM routing, and SCLX routing. Use this parameter to specify the trunk routing attribute for a specific application. For example, selecting *Required* for fiber indicates the call is only built over trunks configured for fiber routing.

[15] DTE/DCE
Options are ***DTE* and *DCE (default)*.**
This parameter specifies whether a DTE or DCE interface card is being used. When this parameter does not match the actual interface card installed, the EIA signal displayed is incorrect. When the value is *DCE*, parameters *DTE/DCE Terminal Timing* and *RTS/CTS Delay* are available. When the value is *DTE*, parameter *RTS/CTS Delay* is not available even though it might appear for some modules.

[16] Timing
Options are ***Internal* (Promina node), *Pass-through* (external)**, and Internal (default). This parameter specifies whether the port is using a timing source from the internal network or a timing source from outside the network.

[17] DTE/DCE Terminal Timing
Options are ***Yes* and *No* (default).**
This parameter ensures that the clock and data received at the port are in phase. It is set to *DCE* for: QASD, USD, or DMD cards. It is set to *DTE* for: USD or QASD cards.

[18] RTS/CTS Delay
This parameter specifies the amount of delay inserted between the times RTS is asserted and the time the node asserts CTS on the port card. The value is rounded to the nearest multiple of 8 that is lower than or equal to the amount entered. For example, if 182 is entered, the value accepted is 176. When 185 is entered, the value accepted is 184.
This parameter is displayed when the DTE/DCE parameter is set to DCE. For USD ports, the range is *0* to *62* milliseconds.

[19] Local CTS (Local Clear To Send)
Options are ***Yes* and *No* (default).**
This parameter specifies whether CTS is generated locally or received from the far-end device. To receive CTS from the far end, the far end must have a DTE interface, and the near, or local, end must have a DCE interface.

[20] Primary Selected Path
Up to 12 node IDs, including intermediate nodes and the destination node can be specified in a selected path. When specifying more than one node, separate the node IDs with a comma. The same node cannot be specified more than once. The default setting for this parameter is ***None*.**

[26] Selected Path Required
Options are ***Yes* or *No*** if a selected path is configured.

- When set to *Yes*, calls are restricted to the path specified in the selected path field.
- When set to *No*, the system may re-route calls from the selected path when the selected path is not available.

[36] Signal Events Enabled
Options are ***Yes* and *No* (default).**
This parameter is used to specify whether interface signal transition events are logged. Use this parameter for diagnostic purposes only, otherwise, the events may flood the event log.

[44] Data Flow Direction
Options are ***Two Way Call* (default), *One Way Inbound*, or *One Way Outbound.*** This parameter is used to define the direction of the data flow. This parameter is used with one-way calls and asymmetric trunks (SA-TRK). Most data ports have this option, although it is not necessary for all data applications.

[63] Encoding Format
Options are ***CDI* and *NRZ (default)*.**
This parameter defines the encoding format of the data. Use *NRZ* (nonreturn-to-zero) for data that is not combined with a clock signal. Use *CDI* when the data is combined with a clock signal.

[64] Balanced Operation
Options are ***Yes* (default) and *No*.**
This parameter sets the balanced operation mode and appears only when Encoding Format is set to *CDI*. When balanced operation is set to *Yes*, each interface signal uses its own two wires (one wire is ground). Balanced operation uses the DB-25 connector. With unbalanced operation (parameter set to *No*), each interface signal uses a single wire and the common interface ground. Unbalanced operation uses the TNC connector.

[65] Isochronous Operation
Options are ***Yes* and *No* (default).**
This parameter is available only when the encoding format is set to NRZ and the front card is a USD card. Isochronous data refers to data circuits, which have no clocking element. Set this parameter to *Yes* if the attached equipment operates in isochronous mode.

[80] PLL Rate
Options are **values between *1* and *15*.**
This parameter, which is displayed only when the timing option (#16) is set to PASSTHRU, allows the user to set the PLL rate for a USD port. The user is able to adjust the PLL value on a per port basis. When this parameter is selected, the software will prompt the user for the new PLL rate value between 1 and 15. If none is entered, the current value is reused. The default value is the value set for the port speed prior to this software release.

[81] Max Link Cost
Value range is ***0* (lowest) through *1023* (highest).** Default value is 0. This parameter specifies the maximum link cost to be used when placing this port circuit.

[82] Isoc CDP
Options are ***Yes* and *No* (default).**
This parameter is available only when the Isochronous Operation is specified. The Isoc CDP parameter indicates whether Conditioned DiPhase is set when isochronous operation is used. Setting of this parameter is not automatic and is user selectable.

[83] Secondary Selected Path
Value is ***None*** or the selected path.
This parameter specifies a secondary call path.

[84] Primary Selected Gateway
Values are: ***0*** **through** ***250***; ***0*** **is** ***NONE*** **(default).**
This parameter specifies a primary gateway node, which is referred to as the Outbound Gateway (OBGW) node. The call will try to use the newly specified OBGW node.

[85] Secondary Selected Gateway
Values are: ***0*** **through** ***250***; ***0*** **is** ***NONE*** **(default).**
This parameter specifies a secondary gateway node (for backup) which is referred to as the Outbound Gateway (OBGW) node. The call will try to use this secondary specified OBGW if the primary selected gateway is unavailable.

[86] Gateway Required
Values are: ***Yes*** **or** ***No*** **(default)**
This parameter specifies that the specified gateway node(s) is/are required.

Install Port USD (2)

```
*** USD PORT N2C7P0 CONFIGURATION (DEST PORT IS N1C25P1) ***
            N2C7P0       N1C25P1                 N2C7P0       N1C25P1

    CARD TYPE: USD         USD           SLOT TYPE: USD         USD
  CARD STATUS: ACTIVE      ACTIVE       PORT STATUS: DISABLED   * NOT INSTLD
ORIG/ANS MODE: ORIG/ANS                  DEST PORT: N1C25P1
   PORT SPEED: 256000                TRANSP SIGNL: NO
CALL PRIORITY: 7                    PREEMPT PRTY: 0
 SEC CALL PTY: 7                   SEC PRMT PTY: 0
  HW I/F TYPE: DCE/RS530/D   DCE/43X      DB I/F TYPE: DCE
 TERR ROUTING: DON'T CARE              TOD RESTRICT: NONE
ENCRY ROUTING: DON'T CARE                  TIMING: INTERNAL
FIBER ROUTING: DON'T CARE
  ATM ROUTING: DON'T CARE
 SCLX ROUTING: DON'T CARE
MAX LINK COST: 0
                                DCE TIMING: NO
CALL ORIG SIG: NONE                    CTS DELAY: 0 MS

 CALL ANS SIG: NONE                    CTS LOCAL: NO
                               SIGNAL EVENTS: NO
 PRI SEL PATH: NONE
 SEC SEL PATH: NONE
  PATH REQUIRED: NO
*** HIT RETURN TO CONTINUE (ESCAPE TO QUIT) ***

DATA FLOW DIR: TWO WAY CALL
*** USD PORT N2C7P0 STATUS IS NOT AVAILABLE BECAUSE
    THE PORT IS DISABLED.
DO YOU WANT TO ACTIVATE PORT N2C7P0?  [YES]
YES OR NO =

*** USD PORT N2C7P0 HAS BEEN ACTIVATED.

*** COMMAND COMPLETE ***
```

Query Port USD

```
< q port, c7p0

ENTER DISPLAY MODE (DETAIL OR SUMMARY)  [D]
DISPLAY MODE (D OR S) =

*** USD PORT N2C7P0 CONFIGURATION (DEST PORT IS N1C25P1) ***
          N2C7P0      N1C25P1                N2C7P0      N1C25P1

   CARD TYPE: USD        USD          SLOT TYPE: USD        USD
 CARD STATUS: ACTIVE     ACTIVE       PORT STATUS: ACTIVE   * NOT INSTLD
ORIG/ANS MODE: ORIG/ANS                DEST PORT: N1C25P1
  PORT SPEED: 256000                TRANSP SIGNL: NO
CALL PRIORITY: 7                  PREEMPT PRTY: 0
 SEC CALL PTY: 7                  SEC PRMT PTY: 0
  HW I/F TYPE: DCE/RS530/D   DCE/RS530/D  DB I/F TYPE: DCE
 TERR ROUTING: DON'T CARE             TOD RESTRICT: NONE
ENCRY ROUTING: DON'T CARE                 TIMING: INTERNAL
FIBER ROUTING: DON'T CARE
  ATM ROUTING: DON'T CARE
 SCLX ROUTING: DON'T CARE
MAX LINK COST: 0
                        DCE TIMING: NO
CALL ORIG SIG: NONE                  CTS DELAY: 0 MS

 CALL ANS SIG: NONE                  CTS LOCAL: NO
                      SIGNAL EVENTS: NO
 PRI SEL PATH: NONE
 SEC SEL PATH: NONE
  PATH REQUIRED: NO
*** HIT RETURN TO CONTINUE (ESCAPE TO QUIT) ***

DATA FLOW DIR: TWO WAY CALL
*** USD PORT N2C7P0 STATUS  (OTHER END IS N0C0P0) ***
   CALL STATE: RETRY WAIT          LAST DISCONNECT: DEST FAULT
  LOOP STATUS: HWLCL   HWRMT  SWLCL  SWRMT  RLREQ  DCELCL
DCERMT
             1     0     0     0     0     0     0
SIGNAL STATUS: DSR  CTS  DCD  SQ  RI  SCTS  SDCD  DTR  RTS  RL  LL
SRTS  TEST
             1   0   0   0  0   0    0   0   0   0  0   0    1
*** HIT RETURN TO CONTINUE (ESCAPE TO QUIT) ***


*** COMMAND COMPLETE ***
```

Highlighted above are certain things to look for when querying this Port, This query will aid you in troubleshooting.

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